We claim:

1. A dermatologic treatment apparatus, comprising:

(a) one or more housings with at least one housing configured for manipulation in a dermatologic treatment procedure;

(b) a divergent light source within at least one of the housings;

(c) an electrical circuit for energizing the divergent light source to produce output light pulses;

(d) a light path from the divergent light source to an aperture through which eye-safe light pulses are propagated out of at least one of the housings;

(e) an optical diffuser disposed along the light path so that an integrated radiance of the output light pulses is reduced to an eye-safe value, and

(f) wherein the output fluence of a light pulse emitted by the apparatus is not less than 4 J/cm^2, and

whereby in use, the dermatologic treatment apparatus produces a fluence on an epidermis of a subject undergoing treatment that is sufficient for efficacious dermatologic treatment and that has an integrated radiance insufficient to cause eye damage.

2. The apparatus of claim 1, wherein the optical diffuser comprises a transmissive diffuser.

3. The apparatus of claim 2, wherein the optical diffuser comprises a bulk scattering diffuser medium.

4. The apparatus of claim 3, wherein the bulk scattering diffuser medium comprises opal glass, PTFE, thin Spectralon, or combinations thereof.

5. The apparatus of claim 2, wherein the optical diffuser comprises a diffusing surface that is refractive or diffractive, or both.

6. The apparatus of claim 5, wherein the diffusing surface comprises random surface irregularities.

7. The apparatus of claim 6, wherein the diffusing surface comprises a ground glass, sandblasted glass or plastic, etched glass or plastic, or molded materials produced by a randomly textured mold, or combinations thereof.

8. The apparatus of claim 5, wherein the optical diffuser comprises a patterned surface.

9. The apparatus of claim 8, wherein the patterned surface comprises a holographic pattern.

10. The apparatus of claim 8, wherein the patterned surface comprises a Fresnel pattern.

11. The apparatus of claim 1, wherein the optical diffuser comprises a reflective diffuser.

12. The apparatus of claim 11, wherein the reflective diffuser comprises a rough surface.

13. The apparatus of claim 12, wherein the rough surface comprises a sandblasted metal, plastic or ceramic, or etched metal, plastic, or ceramic, or molded materials produced by a rough mold, or combinations thereof.

14. The apparatus of claim 11, wherein the reflective diffuser comprises a bulk diffuser or bulk diffuser coating, or both.

15. The apparatus of claim 14, wherein the bulk diffuser or bulk diffuser coating, or both, comprises opal glass, Spectralon, PTFE, diffuse white coatings, Duraflect, or combinations thereof.

16. The apparatus of claim 1, further comprising a mixer along the light path for distributing light more uniformly at the aperture.

17. The apparatus of claim 1, wherein the light source includes one or more diode lasers.

18. The apparatus of claim 17, wherein the one or more diode lasers includes one or more laser diode bars each comprising multiple laser diode emitters.

19. The apparatus of claim 1, wherein the light source comprises one or more flashlamps.

20. The apparatus of claim 1, wherein the light source comprises one or more light emitting diodes.

21. The apparatus of claim 1, wherein the dermatologic treatment apparatus is configured for performing a procedure for at least temporary hair-regrowth inhibition.

22. The apparatus of claim 1, wherein the dermatologic treatment apparatus is configured for treating acne.

23. The apparatus of claim 1, wherein the dermatologic treatment apparatus is configured for treating benign pigmented lesions.

24. The apparatus of claim 1, wherein the dermatologic treatment apparatus is configured for vascular treatment.

25. The apparatus of claim 1, wherein the dermatologic treatment apparatus is configured for skin texture or wrinkle treatment, or both.

26. The apparatus of claim 1, wherein a principal optical axis of light emitted from the light source striking the diffuser is not parallel to the normal of the surface of the diffuser.

27. The apparatus of claim 26, wherein the light source comprises one or more laser diode bars.

28. The apparatus of claim 1, wherein a light pulse emitted by the apparatus has a fluence at the eye of a person of less than a maximum permissible exposure (MPE), such MPE having a value in J/cm^2 equal to $1.8 \times 10^{-3}\ t^{0.75}\ C_4C_6$, where $C_4 = 1$ for 400 nm to 700 nm light and $C_4 = 10^{0.002(\lambda-}$

$^{700)}$ for infrared wavelengths λ in nm from 700 nm to 1050 nm and $C_4 = 5$ for 1050 nm to 1100 nm light, and C_6 is a number between 1 and 66.7 for a diffuse source, and t is the pulse duration in seconds.

29. The apparatus of claim 1, wherein the light source has a divergence not less than 1 degree.

30. The apparatus of claim 1, wherein the light source has a divergence not less than 6 degrees.

31. A dermatologic treatment apparatus, comprising:

(a) one or more housings with at least one housing configured for manipulation in a dermatologic treatment procedure;

(b) a light source within at least one of the housings;

(c) an electrical circuit for energizing the light source to produce output light pulses;

(d) a light path from the light source to an aperture through which eye-safe light pulses are propagated out of at least one of the housings;

(e) a reflective optical diffuser disposed along the light path so that an integrated radiance of the output light pulses is reduced to an eye-safe value, and

(f) wherein the output fluence of a light pulse emitted by the apparatus is not less than 4 J/cm^2, and

whereby in use, the dermatologic treatment apparatus produces a fluence on an epidermis of a subject undergoing treatment that is sufficient for efficacious treatment and that has an integrated radiance insufficient to cause eye damage.

32. The apparatus of claim 31, wherein the light source is divergent.

33. The apparatus of claim 31, wherein the light source includes one or more diode lasers.

34. The apparatus of claim 33, wherein the one or more diode lasers includes one or more laser diode bars each comprising multiple laser diode emitters.

35. The apparatus of claim 31, wherein the light source comprises one or more flashlamps.

36. The apparatus of claim 31, wherein the light source comprises one or more light emitting diodes.

37. The apparatus of claim 31, wherein the dermatologic treatment apparatus is configured for performing a procedure for at least temporary hair-regrowth inhibition.

38. The apparatus of claim 31, wherein the dermatologic treatment apparatus is configured for treating acne.

39. The apparatus of claim 31, wherein the dermatologic treatment apparatus is configured for treating benign pigmented lesions.

40. The apparatus of claim 31, wherein the dermatologic treatment apparatus is configured for vascular treatment.

41. The apparatus of claim 31, wherein the dermatologic treatment apparatus is configured for skin texture or wrinkle treatment, or both.

42. The apparatus of claim 31, wherein a principal optical axis of light emitted by the light source striking the diffuser is not parallel to the normal of the surface of the diffuser.

43. The apparatus of claim 42, wherein the light source comprises one or more laser diode bars.

44. The apparatus of claim 31, wherein a light pulse emitted by the apparatus has a fluence at the eye of a person of less than a maximum permissible exposure (MPE), such MPE having a value in J/cm^2 equal to $1.8 \times 10^{-3} t^{0.75} C_4C_6$, where $C_4 = 1$ for 400 nm to 700 nm light and $10^{0.002(\lambda-700)}$ for infrared wavelengths λ in nm from 700 nm to 1050 nm and $C_4 = 5$ for 1050 nm to 1100 nm light, and C_6 is a number between 1 and 66.7 for a diffuse source, and t is the pulse duration in seconds.

45. A dermatologic hair-regrowth-inhibiting apparatus comprising:

(a) one or more housings with at least one housing configured for manipulation in a hair-regrowth-inhibiting procedure;

(b) one or more diode laser light sources within at least one of the housings;

(c) an electrical circuit for energizing the diode laser light source to produce output light pulses;

(d) a light path from the one or more diode laser light sources to an aperture through which eye-safe light pulses are propagated out of at least one of the housings;

(e) an optical diffuser disposed along the light path so that an integrated radiance of the output light pulses is reduced to an eye-safe value, and wherein

(1) a light pulse emitted by the apparatus has a fluence at the eye of a person of less than a maximum permissible exposure (MPE), such MPE having a value in J/cm^2 equal to $1.8 \times 10^{-3} t^{0.75} C_4 C_6$, where $C_4 = 1$ for 400 nm to 700 nm light and $10^{0.002(\lambda-700)}$ for infrared wavelengths λ in nm from 700 nm to 1050 nm and $C_4 = 5$ for 1050 nm to 1100 nm light, and C_6 is a number between 1 and 66.7 for a diffuse source, and t is the pulse duration in seconds;

(2) a majority of the energy of the light pulse is contained within a spectral band of 700 to 1100 nm;

(3) light pulses are emitted at a pulse repetition frequency between 0.1 Hz and 2 Hz;

(4) the light pulse has a pulse duration between 10 milliseconds and 1 second;

(5) the light pulse has a peak power between 10 watts and 120 watts;

(6) the light pulse at the aperture has a spot size between 0.25 cm^2 and 5 cm^2;

(7) an output fluence of the light pulse is between 4 J/cm^2 and 100 J/cm^2, and

whereby in use, the hair-regrowth-inhibiting apparatus produces a fluence on an epidermis of a subject undergoing treatment that is sufficient to at least temporarily inhibit hair regrowth and that has an integrated radiance insufficient to cause eye damage.

46. The apparatus of claim 45, wherein the optical diffuser comprises a reflective diffuser.

47. The apparatus of claim 46, further comprising a mixer along the light path for distributing light more uniformly at the aperture.

48. The apparatus of claim 46, wherein a principal optical axis of light emitted by the light source striking the diffuser is not parallel to the normal of the surface of the diffuser.

49. The apparatus of claim 45, wherein the light source is divergent.

50. The apparatus of claim 49, wherein the optical diffuser comprises a transmissive diffuser.

51. The apparatus of claim 49, wherein the optical diffuser comprises a reflective diffuser.

52. The apparatus of claim 49, further comprising a mixer along the light path for distributing light more uniformly at the aperture.

53. The apparatus of claim 49, wherein a principal optical axis of the light emitted by the light source striking the diffuser is not parallel to the normal of the surface of the diffuser.

54. A dermatologic hair-regrowth-inhibiting apparatus, comprising:

(a) one or more housings with at least one housing configured for manipulation in a hair-regrowth-inhibiting procedure;

(b) one or more light emitting diode light sources within at least one of the housings;

(c) an electrical circuit for energizing the light emitting diode light source to produce output light pulses;

(d) a light path from the one or more light sources to an aperture through which eye-safe light pulses are propagated out of at least one of the housings;

(e) an optical diffuser disposed along the light path so that an integrated radiance of the output light pulses is reduced to an eye-safe value, and wherein

(1) a light pulse emitted by the apparatus has a fluence at the eye of a person of less than a maximum permissible exposure (MPE), such MPE having a value in J/cm^2 equal to $1.8 \times 10^{-3} t^{0.75} C_4C_6$, where $C_4 = 1$ for 400 nm to 700 nm light and $C_4 = 10^{0.002(\lambda-700)}$ for infrared wavelengths λ in nm from 700 nm to 1050 nm and $C_4 = 5$ for 1050 nm to 1100 nm light, and C_6 is a number between 1 and 66.7 for a diffuse source, and t is the pulse duration in seconds;

(2) a majority of the energy of the light pulse is contained within a spectral band of 600 nm to 1100 nm;

(3)light pulses are emitted at a pulse repetition frequency between 0.1 Hz and 2 Hz;

(4) the light pulse has a pulse duration between 10 milliseconds and 1 second;

(5) the light pulse has a peak power between 10 watts and 120 watts;

(6) the light pulse at the aperture has a spot size between 0.25 cm^2 and 5 cm^2;

(7) the output fluence of a light pulse is between 4 J/cm^2 and 100 J/cm^2,

and

whereby in use, the hair-regrowth-inhibiting apparatus produces a fluence on an epidermis of a subject undergoing treatment that is sufficient to at least temporarily inhibit hair regrowth and that has an integrated radiance insufficient to cause eye damage.

55. The apparatus of claim 54, wherein the optical diffuser comprises a reflective diffuser.

56. The apparatus of claim 55, further comprising a mixer along the light path for distributing light more uniformly at the aperture.

57. The apparatus of claim 55, wherein the principal optical axis of the light emitted by the light source striking the diffuser is not parallel to the normal of the surface of the diffuser.

58. The apparatus of claim 54, wherein the light source is divergent.

59. The apparatus of claim 58, wherein the optical diffuser comprises a transmissive diffuser.

60. The apparatus of claim 58, wherein the optical diffuser comprises a reflective diffuser.

61. The apparatus of claim 58, further comprising a mixer along the light path for distributing light more uniformly at the aperture.

62. The apparatus of claim 58, wherein a principal optical axis of light emitted by the source striking the diffuser is not parallel to the normal of the surface of the diffuser.

63. A dermatologic hair-regrowth-inhibiting apparatus, comprising:

(a) one or more housings with at least one housing configured for manipulation in a hair-regrowth-inhibiting procedure;

(b) one or more flashlamp light sources within at least one of the housings;

(c) an electrical circuit for energizing the flashlamp light source to produce output light pulses;

(d) a light path from the one or more flashlamp light sources to an aperture through which eye-safe light pulses are propagated out of at least one of the housings;

(e) an optical diffuser disposed along the light path so that an integrated radiance of the output light pulses is reduced to an eye-safe value, and wherein

(1) a light pulse emitted by the apparatus has a fluence at the eye of a person of less than a maximum permissible exposure (MPE), such MPE having a value in J/cm^2 equal to $1.8 \times 10^{-3} t^{0.75} C_4 C_6$, where $C_4 = 1$ for 400 nm to 700 nm light and $C_4 = 10^{0.002(\lambda-700)}$ for infrared wavelengths λ in nm from 700 nm to 1050 nm and $C_4 = 5$ for 1050 nm to 1100 nm light, and C_6 is a number between 1 and 66.7 for a diffuse source, and t is the pulse duration in seconds;

(2) a majority of the energy of the light pulse is contained within a spectral band of 500 nm to 1100 nm;

(3) light pulses are emitted at a pulse repetition frequency between 0.1 Hz and 2 Hz;

(4) the light pulse has a pulse duration between 10 milliseconds and 1 second;

(5) the light pulse has a peak power between 10 watts and 120 watts;

(6) the light pulse at the aperture has a spot size between 0.25 cm^2 and 5 cm^2;

(7) an output fluence of the light pulse is between 4 J/cm^2 and 100 J/cm^2,

and

whereby in use, the hair-regrowth-inhibiting apparatus produces a fluence on an epidermis of a subject undergoing treatment that is sufficient to at least temporarily inhibit hair regrowth and that has an integrated radiance insufficient to cause eye damage.

64. The apparatus of claim 63, wherein the optical diffuser comprises a transmissive diffuser.

65. The apparatus of claim 63, wherein the optical diffuser comprises a reflective diffuser.

66. The apparatus of claim 63, further comprising a mixer along the light path for distributing light more uniformly at the aperture.

67. A dermatologic photorejuvenative treatment apparatus, comprising:

(a) one or more housings with at least one housing configured for manipulation in a dermatologic photorejuvenative treatment procedure;

(b) one or more flashlamp light sources within at least one of the housings;

(c) an electrical circuit for energizing the flashlamp light source to produce output light pulses;

(d) a light path from the one or more flashlamp light sources to an aperture through which eye-safe light pulses are propagated out of at least one of the housings;

(e) an optical diffuser disposed along the light path so that an the integrated radiance of the output light pulses is reduced to an eye-safe value, and wherein

(1) the fluence at the eye of a person is less than a maximum permissible exposure (MPE), such MPE having a value in J/cm^2 equal to $1.8 \times 10^{-3} t^{0.75} C_4C_6$, where $C_4 = 1$ for 400 nm to 700 nm light and $10^{0.002(\lambda-700)}$ for infrared wavelengths λ in nm from 700 nm to 1050 nm and $C_4 = 5$ for 1050 nm to 1100 nm light, and C_6 is a number between 1 and 66.7 for a diffuse source, and t is the pulse duration in seconds;

(2) a majority of the energy of the light pulse is contained within a spectral band of 500 to 1100 nm;

(3) the light pulses are emitted at a pulse repetition frequency between 0.1 Hz and 2 Hz;

(4) the light pulse has a pulse duration between 10 milliseconds and 1 second;

(5) wherein the light pulse has a peak power between 10 watts and 120 watts;

(6) the light pulse at the aperture has a spot size between 0.25 cm^2 and 5 cm^2;

(7) the output fluence of the light pulse is between 4 J/cm^2 and 100 J/cm^2,

and whereby in use, the apparatus produces a fluence on an epidermis of a subject undergoing treatment that is sufficient for efficacious photorejuvenation treatment and that has an integrated radiance insufficient to cause eye damage.

68. The apparatus of claim 67, wherein the optical diffuser comprises a transmissive diffuser.

69. The apparatus of claim 67, wherein the optical diffuser comprises a reflective diffuser.

70. The apparatus of claim 67, further comprising a mixer along the light path for distributing light more uniformly at the aperture.

71. A dermatologic treatment method for treating a person's skin, comprising:

(a) gripping in a person's hand a handpiece assembly of a dermatologic treatment device;

(b) positioning the handpiece assembly such that an output window component of the device contacts a region of the epidermis of a same or different person;

(c) energizing a light source with an electrical circuit to produce output light pulses;

(d) transmitting the light pulses generated by the light source along a light path including an aperture through which eye-safe light pulses are propagated having an output fluence not less than 4 J/cm^2;

(e) optically diffusing the light pulses along the light path so that an integrated radiance of the output light pulses is reduced to an eye-safe value;

(f) manipulating the device in a skin treatment procedure, and

(g) wherein the device produces a fluence on a skin surface that is undergoing the skin treatment procedure that is sufficient for efficacious treatment and that has an integrated radiance insufficient to cause eye damage.

72. The method of claim 71, wherein the dermatologic treatment comprises at least temporary hair-regrowth inhibition.

73. The method of claim 71, wherein the dermatologic treatment comprises a photorejuvenation treatment.

74. The method of claim 71, wherein the energizing comprises energizing a divergent light source.

75. The method of claim 71, wherein the diffusing comprises reflectively diffusing.

76. The method of claim 71, wherein the energizing comprises energizing a diode laser light source.

77. The method of claim 71, wherein the energizing comprises energizing a flashlamp light source.

78. The method of claim 71, wherein the energizing comprises energizing a light emitting diode light source.